6-3

# Contract Farming in Developing Countries: Patterns, Impact, and Policy Implications

**By:**

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## Executive Summary

Contract farming may be defined as agricultural production carried out according to a prior agreement in which the farmer commits to producing a given product in a given manner and the buyer commits to purchasing it. Often, the buyer provides the farmer with technical assistance, seeds, fertilizer, and other inputs on credit and offers a guaranteed price for the output. Proponents of contract farming argue that it links small-scale farmers to lucrative markets and solves a number of problems small-scale farmers face in diversifying into high-value commodities. Opponents argue that the imbalance in power between the buyer (often a large agribusiness company) and the farmer leads to an agreement unfavorable to the farmer. Also, they argue that small farmers are often excluded from contract farming schemes, resulting in greater income inequality and social tensions in rural areas.

To understand the rationale for contract farming, it is useful to view it as one form of vertical coordination, in between spot markets (in which supply and demand are coordinated through prices alone) and vertical integration (in which supply and demand are coordinated by having one firm carry out multiple stages in the market channel). Transaction cost economics, a branch of new institutional economics, suggests that, because contracting involves costs, it is economically justifiable only (1) when the buyer is a large firm (a processor, exporter, or supermarket chain); (2) when the product is characterized by large quality variations, perishability, technically difficult production, and/or a high value-bulk ratio; (3) when the destination market is willing to pay a premium for certain product or production attributes that can be ensured only by close coordination between farmers and buyers; and (4) when the policy environment is conducive.

The vast majority of empirical studies suggest that contract farming schemes generally raise the income of farmers participating in the schemes. The evidence is less clear on the degree to which buyers are willing to contract with small-scale farmers—the answer depends on the commodity, the market, and the policy environment.

Contract farming can be promoted with a favorable investment climate, deregulation of direct transactions between companies and farms, the development of grades and standards, facilitation of farmer organizations to link farmers and firms, cooperation with private firms on provision of extension services, provision of mediation services, and exploration of innovative ways to enforce contracts.

Contract farming cannot serve as a broad-based strategy for rural development because it only makes economic sense for certain commodities in certain markets. On the other hand, in those circumstances, it can be an effective institution for helping small farmers raise their productivity and orient their production toward more remunerative commodities and markets.

Your assignment is to recommend a set of policies to be considered by a developing-country government to facilitate contract farming for fruits and vegetables that will benefit low-income farmers, taking into account stakeholders' interests.

## Background

Small farmers in developing countries face a number of constraints that limit their productivity.[1] First, they lack information about production methods and market opportunities, particularly for new crops and varieties. Second, even with sufficient information about profitable investments, small farmers often lack the necessary financial reserves, and access to credit is limited by the lack of collateral. Third, small farmers operating near subsistence are understandably more risk averse than larger farmers. They generally prefer to assure themselves a minimum supply of food before expanding commercial production for an uncertain market.

[1] A "small farmer" is defined as one who relies primarily on family labor with modest or only occasional use of hired labor. In many developing countries, this definition would correspond to farms of less than three to five hectares.

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Contract farming has attracted the interest of researchers and policymakers because it has the potential to solve several of these constraints simultaneously. Contract farming may be defined as agricultural production carried out according to a prior agreement in which the farmer commits to producing a given product in a given manner and the buyer commits to purchasing it. Often, the buyer provides the farmer with technical assistance, seeds, fertilizer, and other inputs on credit and offers a guaranteed price for the output (Eaton and Shepherd 2001).

Although reliable estimates are not available, international trends in agriculture suggest that the prevalence of contract farming may well be increasing in developing countries. The growth of high-value agriculture, the expansion of agricultural processing in developing countries, the consolidation in the retail food sector, and the increased demand for quality and food safety are all driving the need for vertical coordination in agricultural supply chains (Gulati et al. 2006).

Contract farming is the subject of some controversy, however. Among proponents, contract farming is seen as a solution to the problems of information, credit, and market risk that small farmers face in commercial production. They see contract farming as facilitating the integration of small farmers into commercial agriculture, leading to income growth and poverty reduction. Critics, on the other hand, see contract farming as a way for large firms to take advantage of the land and poverty of small farmers, effectively paying them less than the minimum wage and "taking control" of their farms. The integration of small farmers into commercial agriculture is seen as a negative trend, leading to higher risk, indebtedness, and income inequality (Little and Watts 1994; Singh 2002).

This case describes the role of contract farming in agricultural development, focusing on its impact on small farmers in developing countries. In particular, the paper has three objectives:

- to describe the economic rationale for contract farming as a way to organize agricultural production,
- to review previous research on the impact of contract farming on small farmers, and
- to identify key stakeholders and derive some implications for development policy.

## Contract Farming as a Form of Vertical Coordination

All markets require some form of vertical coordination—that is, coordination of supply and demand between different participants in the marketing channel, such as farmers, processors, wholesalers, and retailers. Consider the example of a maize farmer in the western highlands of Kenya. If the farmer intends to sell some of the maize harvest, he or she needs to know what kind of maize is in demand, where and when to sell it, and what price it is likely to sell for. Similarly, a maize-milling company in Nairobi needs to know what kind of maize will be available for purchase, where to buy it, when it will be harvested, and how much it will cost. This type of vertical coordination problem exists throughout the marketing channel—for example, between processors and wholesalers and between wholesalers and retailers—but the focus here is on the relationship between farmers and the buyer of the agricultural output.

Often farmers sell in spot markets, involving transactions between buyers and sellers that involve no commitments outside the transaction itself. In this case, coordination of supply and demand with respect to quantity, quality, and timing occurs only through the price. Farmers learn that prices are higher in Nairobi than in the local district market, higher in the off-season than during the harvest, and so on, and they respond to this information. Similarly, buyers learn how prices vary over the seasons and throughout the country, and they adjust their procurement strategy accordingly.

Sometimes, vertical coordination between buyers and sellers is accomplished with informal or formal agreements with regard to price, quantity, timing, and product attributes. For example, the maize processor may approach the farmer before planting season and agree to buy one ton of maize at harvest time for a fixed price, assuming the maize meets a certain quality standard. The marketing contract works when both the farmer and the buyer gain from having the terms of sale arranged in advance. In some cases, this level of coordination is not enough, and the processor also provides agricultural inputs and technical assistance on credit. This resource-providing contract makes

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sense when the buyer has more information about production methods or wants to ensure a level of quality or food safety. For example, the buyer may specify the types of pesticides that can be used and the timing of their application to be certain that pesticide residue standards are met. Finally, some production management contracts specify the manner in which the commodity is to be grown, such as the planting density, use of pesticides, and timing of harvest (Martinez 2002).

Of course, contracts involve costs for both farmers and buyers. The buyer must draft a contract, educate potential farmers about the terms of the contract, sign up participants, monitor compliance with the contract, and develop a strategy for enforcing the contract. The farmer makes a commitment to sell to a buyer at a given price and gives up some autonomy in production decisions. In order for contract farming to be worthwhile to both parties, the gains from reducing transaction costs must exceed the costs of establishing the contract.

The tightest form of vertical coordination is vertical integration, in which agricultural production and processing are carried out within the same company. Instead of dealing with contract farmers who are farming their own land, the company purchases (or leases) farmland and hires farm workers. Clearly, the company has more control over how the product is grown and harvested when it owns the land and hires the labor, but there are disadvantages as well. For example, farm workers are paid by the day, so they are less motivated than independent farmers and require closer supervision. In addition, it is more difficult and costly to adjust output when the firm produces on its own land.

What determines whether a given supply channel uses spot markets, contracts, or vertical integration? The most useful way to analyze vertical coordination is with the new institutional economics (NIE). Traditional neoclassical economics tends to assume that the institutions (defined here as the laws, codes, and social norms that define acceptable behavior) are given, whereas NIE looks specifically at the factors that shape the design of economic institutions (Grosh 1994). One branch of NIE, called transaction cost economics (TCE), explains relations between buyers and sellers in terms of the costs of carrying out transactions, including finding a buyer, negotiating a price, delivering the commodity, and obtaining payment, as well as the risks associated with the transaction, including the risk of being cheated (Williamson 2000). The costs of carrying out a transaction can be considerable and can be exacerbated by three problems:

- Imperfect information—The buyer and seller never have all the relevant information they need to negotiate the terms of the transaction. Often the seller has more information about the quality of the product, but the buyer has better information about the market. This information asymmetry prevents markets from operating efficiently.
- Limited ability to process information—Even if the buyer and seller had all the relevant information, they would not have the time or capacity to analyze it thoroughly, a problem sometimes called bounded rationality.
- Dishonesty—The buyer and seller can never fully trust each other, since each has some short-run incentive to misrepresent the truth and violate the terms of their agreement. This is called opportunistic behavior.

Because of imperfect information, sellers must spend time finding potential buyers and negotiating over the price. Buyers have imperfect information about the product they are purchasing, which sometimes means they must inspect it before purchase. The possibility of dishonest behavior means that buyers and sellers cannot simply rely on the claims of potential trading partners; they must take into account the possibility of being cheated. And limited ability to process information means that there is little incentive to exhaustively research all their options. Even after gathering information, they still must decide on the basis of incomplete information.

Formal and informal economic institutions are designed to address these problems by facilitating communications, disseminating information, and punishing dishonest behavior. For example:

- the legal system helps to enforce contracts and limit opportunistic behavior;

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- trade associations and better business bureaus help to discourage dishonesty by establishing codes of conduct and by identifying and exposing firms that use unscrupulous practices;
- grades and standards are used to define quality and facilitate negotiations;
- credit bureaus reduce the risk faced by lenders and discourage discretionary default; and
- informal codes of conduct serve to outline acceptable behavior in transactions.

These institutions, however, cannot eliminate all costs and risks associated with carrying out a transaction, particularly in developing countries where the legal system and other institutions are less well developed. And within developing countries, the issues of transaction costs are particularly relevant in the agricultural sector because of the perishability of the product, the geographic dispersion of agricultural production, and farmers' limited resources and access to information.

The risks of opportunistic behavior are even greater when the buyer or seller must make certain investments that are only useful for carrying out a transaction with the other party. For example, to grow coffee, farmers must invest in planting coffee trees, which take four to five years to begin producing. After farmers make the investment, their negotiating position is seriously weakened and the buyer may be tempted to lower the price, particularly if there are no other processors in the area. Realizing this, farmers are understandably reluctant to make the investment in the first place. Because of this problem of asset specificity, farmers may not be willing to invest in producing a commodity, even if there is a price at which both farmers and processors earn profits.

Asset specificity may be an issue for the buyer as well. If a processing plant is designed to handle just one commodity, the processor is "locked" into that sector and depends on a steady supply of the raw material. If there are only a few suppliers and the buyer is concerned about collusion among them, the incentive to invest in the processing plant will be reduced. This problem is probably less severe for buyers than for farmers, however, because there are often many suppliers, making collusion difficult. As discussed later, this may be an important incentive for processors to work with a large number of smaller farmers rather than a small number of large farmers.

## Conditions under Which Contract Farming Makes Sense

Under what conditions will contract farming be profitable for both growers and buyers? This brief discusses the role of three factors: (1) the type of buyer, (2) the type of commodity, and (3) the type of destination market.

*Type of buyer.* What types of buyers are more likely to organize a contract farming scheme? Setting up a contract farming scheme involves large fixed costs[2]: the buyer needs a team of field agents who negotiate terms with farmers, distribute inputs, provide technical assistance, and collect the product. As a result, contracting is generally not worthwhile for traditional wholesalers or other small- and medium-scale buyers. Rather, the buyers in a contract farming scheme are more likely to be large-scale processors, exporters, or supermarket chains. In addition, buyers with large capital-intensive processing plants have more incentive to contract with farmers because they need a steady and reliable flow of raw materials to maintain a high capacity-utilization rate. This is particularly true if the plant purchases a large share of the locally available product, since there is more risk of supply shortfalls owing to weather or changes in the market. For example, the profitability of a sugar mill is dependent on having a steady flow of sugar-cane over the year, including supplies before and after the peak harvest season. Sugar mills often use contract farming to stagger production over the season and increase capacity. In addition, because sugarcane is bulky and perishable, it cannot be transported far, and sugar mills often purchase a large share of the cane available in a given area (Sartorius et al. 2004).

*Type of agricultural commodity.* What types of agricultural commodities are more likely to be produced using contract farming? If a product is homogeneous and nonperishable, if quality is easily observed, and if farmers are familiar with the production methods and market requirements, then

[2] Fixed costs refer to costs that do not vary with the scale of production. In contrast, variable costs are those that increase with the volume of production.

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transaction costs are low. In this case, there is no need to incur the costs associated with contracts, so spot markets will be more efficient. These factors explain why spot markets are the standard form of vertical coordination between farmer and buyers in the markets for staple grains, starchy root crops such as cassava, and pulses. Even perishable fruits and vegetables, when widely grown and intended for rural consumption, are usually sold on the spot market, although there are often informal relationships between farmers and buyers which may serve some of the functions of formal contracts.

More vertical coordination is required, however, for commodities with the following characteristics:

- Economically important quality variation—Vertical coordination is more likely if consumers are willing to pay a premium for a variety or attribute that will cover the additional cost of producing it and the cost of vertical coordination. Farm-level investments in human capital (skills), physical capital (assets), or specialized inputs are required to raise quality. In this case, vertical coordination is needed to provide producers with the incentives and the means to make those investments.
- High value-bulk ratio—A given percentage premium for higher quality is more likely to cover the incremental cost of contracting if it is a high-value commodity.
- High perishability—Not all perishable goods are produced under contract, but the need for some form of vertical coordination increases when the commodity is highly perishable. Perishability increases the need for farmers and buyers to coordinate the timing of harvest and delivery. In addition, a farmer's bargaining power is seriously weakened once the product is harvested unless there is a contract relationship that ensures a fixed price or at least a personal relationship that ensures a "fair" price.
- Technically difficult production—If buyers can reduce the cost of production with technical expertise, specialized inputs, or credit, then vertical coordination is useful in transferring these resources to farmers. Farmers in developing countries may not have the available cash to purchase inputs at planting time, so the contract allows the buyer to provide them on credit and to recover the cost of the inputs by deducting it from the payment to farmers at harvest.

These factors imply that vertical coordination is needed for high-quality fruits and vegetables, organic products, spices, flowers, tea, tobacco, seed crops, and other quality-sensitive and perishable commodities. In dairy production, the high degree of perishability and the importance of quality encourage vertical coordination, including contract production and dairy cooperatives. Dairy cooperatives can be considered a form of vertical integration in that farmers jointly purchase and manage processing facilities. Medium- and large-scale poultry production is often organized in a contract farming arrangement, in which the processor provides chicks, feed, and medicine to contract farmers and takes the chickens at the end of the growing cycle. Poultry contracts are quite detailed, specifying many aspects of the production process. The processor retains legal ownership of the chickens, so the relationship is almost like home-based piecework, in which the grower provides labor and the production site and is paid based on the number of units produced. Part of the rationale for poultry contracting is that the processor is providing specialized inputs and production methods on credit. In Thailand, for example, virtually all commercially produced broilers are produced under contract, whereas the corresponding figure for the Philippines is 80 percent (Delgado et al. 2003).

An alternative to contract farming is vertical integration, in which the buyer owns farmland and engages in direct production of the commodity. In the choice between contracting and vertical integration, an important factor is the existence of economies of scale in production. If large-scale production of the commodity is more economical and large tracts are available for purchase or lease, then processors and exporters are more likely to vertically integrate into direct agricultural production (Minot 1986). This is the case with bananas, pineapples, and sugarcane, for which large-scale production is generally less costly. For example,

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pest control in banana production often involves aerial spraying, which implies economies of scale. In some countries, it is not possible to purchase or lease large plots of land, preventing processors from vertically integrating into production and forcing them to rely on contract production. In Kenya, Del Monte used to contract with medium-scale farmers to grow pineapples, but when the government made long-term land leases available at concessionary rates, the firm switched from contract production to plantation production (Minot and Ngigi 2004). Vertical integration has the advantage of tight control over production decisions, but the disadvantages of inflexible productive capacity and high costs of supervising day-wage laborers, who are less motivated than small-scale farmers.

*Type of destination market.* The third factor is the destination market. The more quality-sensitive the final market and the more demand there is for food safety, the more incentive there is for vertical coordination to increase control over the production process. The same commodity may be sold on the spot market for local rural consumers and grown under contract farming schemes for upscale urban supermarkets and exporters. Some researchers argue that tighter food safety standards in the United Kingdom are creating incentives for horticultural exporters in Kenya to switch from small-scale contract farmers to large-scale contractors and vertically integrated operations because it is difficult for the exporter to monitor and document the production practices of many small-scale farmers (Dolan and Humphrey 2000). In Shandong Province, China, apples for export to Japan are grown by vertically integrated orchards/packing houses, whereas apples for sale to urban supermarkets are often grown under contract and apples for local consumption are sold by farmers to wholesalers in spot markets (Hu 2005).

Another example in which the same commodity is grown with and without vertical coordination depending on the destination market is organic food production. Processors and exporters often establish contract farming schemes to procure organic products, partly to ensure that organic methods are in fact used. In some cases, particularly in developing countries, buyers may contract with farmers as a way of assisting them with organic food production methods. The profitability of organic food production depends, of course, on consumers' willingness to pay a premium that covers both the additional cost of production (due to lower yields) and the cost of monitoring and certifying. For example, although rice is rarely grown under contract, organic rice production is often organized under a contract farming scheme (see Setboonsarng et al. 2006).

A third example is seed production. Seeds must be grown under carefully monitored conditions to minimize the risk of seed-borne diseases, mixture of weed seed, or mixture with other varieties of the same crop. This process involves starting with healthy seed that is varietally pure, monitoring the field closely, controlling weeds effectively, and isolating fields from fields with other varieties, all of which add to production costs. Sometimes seed companies use their own fields (vertical integration), particularly for early generations of seed multiplication. But often they use contract farmers, particularly for the later generations, to reduce the costs of production and achieve larger volumes. Farmers would be reluctant to take these additional measures unless they were assured of a price premium above the price of the food crop (Simmons et al. 2005).

## Impact of Contract Farming on Small Farmers

The impact of contract farming on small farmers can be divided into two issues. First, how does contract farming affect smallholders who are participating in the contract farming scheme? Second, do small farmers participate in contract farming schemes, or are they excluded? This section summarizes the results of previous research on these topics.

*Impact of contract farming on the income of participating farmers.* Economic logic would suggest that well-informed farmers will not voluntarily enter into contracts with buyers unless they believe there will be benefits. Because of the possibility of misperceptions or lack of information, however, it is worth examining the empirical research. Research on contract farming in developing countries is fairly extensive, going back to the 1970s. In an early review of the literature, Minot (1986) finds that most studies suggest that farmers benefit from contract farming because it provides them with inputs on credit, technical assistance, and often a guaranteed price, allowing them to produce a

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higher-value commodity than would otherwise be possible. Other studies provide a more skeptical view of the benefits of contract farming. Little and Watts (1994) compile a set of seven case studies of contract farming in Sub-Saharan Africa. The case studies focus on the historical and political context of contract farming, conflicts between farmers and the contracting firms, the imbalance of power between the two parties, intrahousehold tensions over the division of labor and the allocation of new revenues, and the increasing rural inequality as contract farmers grow wealthy enough to hire farm laborers. In his summary of the cases, Little (1994, 221) concludes that "incomes from contract farming increased for a moderate (30–40 percent) to a high (50–60 percent) proportion of participants." This income was not enough to live on, however, and farmers had to rely on other farm and nonfarm income. In several cases, households lost land that was appropriated for government-run contract farming schemes.

In a review of the experience of contract farming in Africa in the early 1990s, Porter and Phillips-Howard (1997) conclude that farmers were generally better off as a result of their participation in contract farming, in spite of a number of social problems that arose in the communities. Singh (2002) identifies a series of problems associated with contract vegetable production in the state of Punjab in India: imbalanced power between farmers and companies, violation of the terms of the agreements, social differentiation, and environmental unsustainability. Nonetheless, his surveys reveal that most farmers have seen incomes rise since joining the scheme and are generally satisfied with the contract arrangement.

There is some evidence that contract farming leads to a sharing of risks between the producer and the purchaser. Birthal et al. (2005) show that, in the case of poultry farmers in India, the coefficient of variation (CV) of the profits of contract farmers is lower than the CV of profits of noncontract farmers. Because there was not much variation in yield, price volatility was the main reason for high variability in profits of independent growers.

Birthal et al. (2005) also examine contract production of vegetables and milk in India. They find that vegetable contract farmers received prices that were 8 percent higher than those received by noncontract growers, and contract milk producers received prices that were 4 percent higher. Other things being equal, agroprocessors find it more advantageous to deal with a small number of larger suppliers of raw materials than with a large number of smaller suppliers. Working with small farmers, however, often has offsetting advantages. Birthal et al. (2005) observe that firms in India often found it more convenient to contract with smallholders and their associations for several reasons:

- lower risk for overall supply in the event of crop failure of one or few farmers;
- higher quality thanks to labor-intensive management; and
- lower costs due to lower implicit wage rates.

Warning and Key (2002) study contract farming in groundnuts in Senegal. NOVASEN, a private company, contracted with 32,000 growers and produced approximately 40,000 tons of groundnuts annually. Warning and Key found that the increase in gross agricultural revenues associated with contracting is statistically significant and large, equal to about 55 percent of the average revenue of noncontract farmers.

Another study, carried out in Indonesia by Simmons et al. (2005), examined contract growers of poultry, seed maize, and seed rice. The contracts for poultry and seed maize resulted in improved returns to capital, whereas no significant impact was found in the case of seed rice. Simmons et al. conclude that the contracts increased income and welfare, reducing absolute poverty.

Ramaswami et al. (2006) studied poultry growers with and without contracts in India. They found that average gross margins were similar between contract growers and others, but the regression analysis indicated significant gains from contracting. The explanation is that contract growers were less experienced and had less access to credit than other growers. Thus, they gained more from the management assistance and the credit provided by the firm than would more capable farmers who already had access to credit. Consequently, the incomes of contract farmers were significantly higher than they would have been without the contract, but only slightly higher than the incomes of the more-skilled independent growers. In addition, the authors also show that the variability of gross

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margins across production cycles was much lower for contract growers than for independent growers, revealing another benefit of contracting.

Although numerous studies confirm that contract farmers gain from participation, the studies also show that there are frequent violations of the terms of the contract by buyers or farmers. In some cases, market prices rise and farmers try to sell to other buyers, avoiding repayment of the input credit. In other cases, prices fall and the processor buys supplies from the open market, imposing strict quality standards on the contractors to avoid purchasing from them at the agreed price. Since the contracts are generally not legally enforceable,[3] the only leverage the firm has is to refuse to work with the farmer in the future. Similarly, the main leverage of farmers is to withdraw from the scheme or to bring the case to local officials for intervention. Indeed, an earlier review of the history of contract farming schemes in Kenya indicates a fair amount of turnover, as old schemes collapse and new ones are launched (Jaffee 1994).

Thus, the weight of evidence suggests that successful contract farming schemes generally raise the incomes of farmers who join them. The cases where contract farming does not improve farm income (or at least reduce income volatility) are often short-lived as the scheme collapses.

*Participation of small-scale farmers in contract farming schemes.* Even if farmers benefit from their contractual relations with processors and exporters, there is still the issue of whether small-scale farmers are able to participate in contract farming schemes. Some critics of contract farming argue that firms tend to work with medium- and large-scale farmers (Little and Watts 1994; Singh 2002). If so, contract farming may be an interesting institutional mechanism for vertical coordination, but it would have less relevance for poverty reduction strategies. In fact, by contributing to income inequality, it may exacerbate tensions between social groups in rural areas. Other things being equal, firms would generally rather work with a small number of larger farmers rather than a large number of small-scale farmers. The transaction costs associated with negotiation, technical assistance, the monitoring of quality, and collection of harvest would certainly be less if the firm works with a smaller number of larger farmers. All other factors, however, are not equal. Most important, the family labor used by small-scale farmers has a lower implicit wage rate than the wage laborers hired by medium- and large-scale farmers. In addition, family labor is better motivated than hired laborers to respond to problems such as disease or pest attack as they occur during the crop cycle.

A number of studies examine the proportion of contract farmers that are smallholders, as an indicator of the pro-poor impact of contracting. Guo et al. (2005) use data from farm-level surveys in China covering several products to estimate the likelihood of participating in a contract farming scheme as a function of household characteristics, crop mix, and farm size. The results show that small farmers are less likely to participate in contract farming than larger farmers.

Key and Runsten (1999) look at contract farming in the tomato-processing industry in Mexico. Multinational agroprocessors from the United States first contracted with large growers but then involved small growers, partly because as a lucrative market for fresh tomatoes developed, firms found it increasingly difficult to enforce contracts they had with larger growers.

In the study of groundnuts in Senegal cited earlier, Warning and Key (2002) compared contract and independent farmers by various measures of assets. They found that indicators of asset ownership were not significant predictors of participation in the contract farming scheme, suggesting that contractors were typical rural households. In the study of contract farming in Indonesia, Simmons et al. (2005) found that contract seed growers had larger farms than independent growers, but contract poultry producers tended to be smaller than independent poultry growers.

A few studies give examples of buyers shifting from small-scale to large-scale farmers or the reverse. One example, cited in World Bank (2006), is an exporter in Thailand that started producing its own horticultural products on company land and later shifted to smallholder contract production. Minot and Ngigi (2004) describe the evolution of

[3] Although the contract may be legally binding in theory, it is often not worthwhile to either party given the high cost of bringing the case to court relative to the value in dispute.

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several contract farming schemes in Kenya, including one (Del Monte pineapple) that gave up on contract production and shifted to vertically integrated plantation production. Others have shifted from large-scale to small-scale production. In Senegal, green bean exporters switched from small-scale contract production to large-scale contract production (Maartens and Swinnen 2006). These findings confirm that the comparative advantage of smallholders is not a static concept, but it can change as farmers and buyers experiment and learn from experience. One study in Costa Rica found that younger, less experienced growers were more likely to grow under contract (Saenz and Ruben 2004). The fact that contract farming schemes occasionally switch from large-scale to small-scale farmers suggests that the cost differences between them is small, which implies that public policy may be able to play a role in encouraging the participation of small farmers in these supply chains.

## Stakeholders

Contract farming involves at least five types of stakeholders. This section examines the interests and motivations of each stakeholder.

### Contracting Firm

The contracting firm is usually a medium- or large-scale processor, exporter, or supermarket chain. One of the firm's main interests is in obtaining a steady flow of high-quality agricultural products at the lowest price possible.[4] It faces difficult decisions: it is easier to work with a small number of large farmers, particularly if they have the financial and technical resources to produce a high-quality product throughout the year. On the other hand, large-scale farmers may be harder to bargain with (particularly if they organize themselves), and the firm may be wary of becoming too dependent on them. It may face political pressure from the government to show that it is working with small farmers and helping promote rural development. The firm also faces competitive pressures from other buyers of the commodity, who may try to divert the contracted output, and from others in the same sector, who may undercut their prices. And a constant source of risk is the fact that one highly publicized case of food poisoning could put their entire business strategy at risk.

### Participating Farmers

Farmers who participate in a contract farming scheme generally do so of their own volition, but there are frequent sources of tension with the contracting firm. Some farmers may suspect that the quality of inputs is poor. Others may be confused or suspicious of the criteria used by the firm to grade their harvest, because the grade determines the price the firm will pay. When market prices are high, farmers may be tempted to sell some of their harvest on the open market, but they risk losing their place in the scheme if discovered. There may also be concern about the possibility that the firm will start to contract with a different set of farmers who can undercut them or offer better quality. Alternatively, the firm could decide to vertically integrate by leasing land and growing its own product with hired laborers.

### Nonparticipating Farmers

Farmers who do not participate in a contract farming scheme may envy the access to inputs, credit and the guaranteed market that participating farmers enjoy. At the same time, they may be unsure if it is worth joining given some of the complaints they hear about the company. More commonly, they may not be able to join the scheme because of some criteria established by the firm regarding location, farm size, irrigation, assets, and/or literacy. Still other farmers may have been contract farmers in the past but left the scheme, either because they believe they have the skills to market the product themselves or perhaps because they were caught selling on the side and lost the contract.

### Government

Government officials are generally pleased to have a formal-sector agribusiness firm because it generates tax revenue and may contribute to exports. Furthermore, the firm creates employment and shows that the government is addressing the problems of rural areas. At the same time, the firm may frequently pressure the government for extensions

[4] Firms may have other motives as well. Seed companies often contract seed multiplication in order to control the intellectual property embodied in the seed variety.

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on its tax concessions, for better roads to the factory, and for more reliable electricity. For a given size of operation, government officials would generally prefer that the firm work with more small-scale farmers and pay better prices, but they are also aware that if costs rise too much, the firm may relocate its operations to another country where labor costs are lower.

### Farmer Organizations or Nongovernmental Organizations

Often a cooperative, farmers' organization, or nongovernmental organization (NGO) plays the role of intermediary between farmers and the company. This arrangement has the potential to reduce the transaction costs for the firm in communicating with farmers, distributing inputs, and collecting the harvest. NGOs are often involved in farmer training and input delivery, whereas cooperatives and farmer organizations are more likely to be involved in collecting the harvest for the company and other organizational tasks. The organization tries to represent the interests of farmers to the company to get better prices or clearer rules on grading. But it also realizes that, if it pushes too hard, the company could choose to work directly with farmers, cutting the organization out of the system, or it could work with farmers in other districts.

## Policy Options

Developing countries can promote pro-poor contract farming by creating a conducive policy environment. In particular, the following policy goals should be considered:

- a favorable investment climate;
- deregulation of direct transactions between companies and farms;
- development of grades and standards;
- facilitation of farmer organizations to link farmers and firms;
- cooperation with private firms on provision of extension services;
- promotion of competition;
- provision of mediation services; and
- exploration of innovative ways to enforce contracts.

### Improve the Investment Climate

As already discussed, contract farming schemes are usually organized by large-scale processors, exporters, or chains of supermarkets. Thus, an investment climate that facilitates private investment in agribusiness sectors is a necessary precondition for the development of private contract farming schemes. This improved climate involves reducing unnecessarily high capital requirements to start new firms, streamlining registration procedures, limiting licensing requirements to sectors in which public health or safety is an issue (such as pesticide distribution), developing a fair and transparent tax code, simplifying customs clearance procedures, adopting a modern commercial and legal code, and minimizing corruption.

### Legalize Direct Firm-Farm Contracts

The government can facilitate contract farming and other forms of vertical coordination by removing legal restrictions that prevent firms from buying directly from farmers in some countries. Although designed to protect farmers' interests, these regulations often serve only to impose the use of an intermediary organization, such as a cooperative, which may increase marketing costs. The government's role should be to ensure that both parties to an agreement understand and accept the terms.

### Develop Effective Grades and Standards

The establishment of grades and standards that are easy to implement and that reflect attributes demanded by consumers will facilitate communication and negotiation between buyers and farmers and among traders. It will also make it easier for buyers to establish contracts with farmers, given that quality control and grading are often contentious issues in farmer-buyer relations within contract farming schemes. The government may also have a role in certifying compliance with private grades and standards, such as EUREGAP, a set of standards developed and adopted by a consortium of European supermarkets.

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## Facilitate Farmer Organizations and Other Intermediaries

Contract farming schemes involving large numbers of small farmers often make use of an intermediary organization. A cooperative, an NGO, or even a large-scale farmer may serve as a link between the firm and small-scale farmers. The activities of local officials and extension agents can play a role in allowing and even promoting the development of such intermediary organizations, which reduce the transaction cost associated with dealing with a large number of small farmers. The organizations should, however, involve voluntary membership by farmers and voluntary contractual relations with firms to ensure that they are productive.

## Promote Public-Private Partnerships in Extension

Traditionally, extension services have concentrated on providing technical assistance in the production of staple crops. As farmers diversify into high-value commercial crops, extension services must adapt by providing assistance on a wider range of crops and by providing more marketing assistance. Contract farming schemes often use cooperatives, NGOs, extension agents, and local officials as intermediaries. If extension services have the flexibility to provide services on behalf of the contracting firm and the incentive to serve small-scale farmers, it reduces the cost to the firm of working with small-scale farmers. Of course, the rationale for providing extension services is stronger if the scheme is working with small-scale contract farmers.

## Promote Competition

One of the biggest concerns about contract farming is the fact that firms seem to have much greater market power and leverage than do the farmers who bargain with them. One of the best approaches for limiting this power is to allow or promote competition among firms. Policymakers should be reluctant to offer regional monopsony power that agribusiness firms sometimes seek.[5] This practice is particularly common in the cotton and sugarcane sectors. At the same time, it is important to recognize that competition makes it easier for farmers to obtain inputs and credit from one company and then sell the harvest to another company, thus avoiding repayment of the loan. There are, however, better methods of enforcing contracts than by granting regional monopsonies.

## Provide Mediation Services

One of the most common problems in contract farming is violation of the contract. If the market price rises during the agricultural season, farmers are tempted to sell to other buyers, particularly since doing so means they can avoid repaying the input credit. On the other hand, if the market price falls, the buyer is tempted to procure raw materials on the open market. The buyer may apply quality standards more strictly under such circumstances, reducing its obligation to purchase from contract growers. If these abuses are widespread, they can lead to loss of confidence and possibly the collapse of the contract farming scheme. Government officials, particularly extension officers, sometimes play a role in mediating between contract growers and the buyer. Alternatively, they could help organize a nongovernmental mediation board with members acceptable to both sides. This is an area where there are no clear, widely applicable models, but one that deserves more attention.

## Enforce Contracts

The government should explore alternative approaches to enforcing contracts, particularly between buyers and farmers. In countries with more advanced legal systems, this enforcement could be accomplished by establishing small-claims courts. In other countries, it may involve collecting and disseminating information on noncompliance on the part of both farmers and buyers. Providing better information about noncompliance will increase the incentives for farmers and firms to comply and help each party avoid high-risk business partners. In Benin the government has established a clearinghouse for information on farmers who are producing cotton and receiving inputs on credit. This information makes it easier to punish both the farmer who violates the terms of his or her contract and the buyer who knowingly purchases cotton from growers who have contracts with other companies.

[5] Monopsony refers to a situation in which there is only one buyer of a commodity, in contrast to a monopoly, where there is just one seller.

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## Assignment

Your assignment is to recommend a set of policies to be considered by a developing-country government to facilitate contract farming for fruits and vegetables that will benefit low-income farmers, taking into account stakeholders' interests.

## Additional Reading

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